

## PATENT COOPERATION TREATY

MODTAGET

25 APR. 2005

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

Larsen &amp; Birkeholm A/S

PCT

To:

LARSEN & BIRKEHOLM A/S Skandinavisk  
Patentbureau  
Banegårdspladsen 1  
P.O. Box 362  
DK-1570 Copenhagen V  
DANEMARK

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT

(PCT. Rule 71.1)

Date of mailing  
(day/month/year)

25.04.2005

Applicant's or agent's file reference  
17900.PCT

## IMPORTANT NOTIFICATION

International application No:  
PCT/DK 03/00928International filing date (day/month/year)  
22.12.2003Priority date (day/month/year)  
30.12.2002Applicant  
BABY DAN AS

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

## 4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international  
preliminary examining authority:

European Patent Office - P.B. 5818 Patentlaan 2  
NL-2280 HV Rijswijk - Pays Bas  
Tel. +31 70 340 - 2040 Tx: 31 651 epo nl  
Fax: +31 70 340 - 3016

Authorized Officer

Ter Haar, H

Tel: +31 70 340-3817



# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>17900 PCT</b>	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/16)	
International application No. <b>PCT/DK 03/00928</b>	International filing date (day/month/year) <b>22.12.2003</b>	Priority date (day/month/year) <b>30.12.2002</b>
International Patent Classification (IPC) or both national classification and IPC: <b>E05F7/02</b>		
Applicant <b>BABY DAN A/S</b>		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 8 sheets.</p> <p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <li>I <input checked="" type="checkbox"/> Basis of the opinion</li> <li>II <input type="checkbox"/> Priority</li> <li>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li>IV <input type="checkbox"/> Lack of unity of invention</li> <li>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li>VI <input type="checkbox"/> Certain documents cited</li> <li>VII <input type="checkbox"/> Certain defects in the international application</li> <li>VIII <input type="checkbox"/> Certain observations on the international application</li> </ul>		
Date of submission of the demand  <b>22.07.2004</b>	Date of completion of this report  <b>25.04.2005</b>	
Name and mailing address of the international preliminary examining authority:  <div style="display: flex; align-items: center;"> <div>             European Patent Office - P.B. 5818 Patentlaan 2              NL-2280 HV Rijswijk - Pays Bas              Tel. +31 70 340 - 2040 Tx: 31 651 epo nl              Fax: +31 70 340 - 3016           </div> </div>		Authorized Officer:  <b>Guillaume, G</b>  Telephone No. +31 70 340 2696

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/DK 03/00928

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages:**

1-6 received on 21.03.2005 with letter of 17.03.2005

**Claims, Numbers**

1-9 received on 21.03.2005 with letter of 17.03.2005

**Drawings, Sheets**

1/1 as published

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. **PCT/DK 03/00928**

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims:	2-9
	No: Claims:	1
Inventive step (IS)	Yes: Claims:	6,7
	No: Claims:	1-5,8,9
Industrial applicability (IA)	Yes: Claims:	1-9
	No: Claims:	

**2. Citations and explanations:**

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/DK 03/00928

**Re Item V**

**1.1 Reference is made to the following documents:**

- D1: US-A-5 127 132 (KARLIN JAMES) 7 July 1992 (1992-07-07)
- D2: US-A-1 294 044 (BUCKWALTER) 11 February 1919 (1919-02-11)
- D3: WO 97/40253-A (ANDERSEN FINN) 30 October 1997 (1997-10-30)

**1.2 The document D4 was not cited in the international search report:**

- D4: DE-U-8812589 (KNÜRR-MECHANIK A.G.) 12 January 1989 (1989-01-12)

**2. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of independent claim 1 is not new in the sense of Article 33(2) PCT as D4 discloses (page 3, paragraph 6 - page 5, paragraph 3; figure 1) a hinge comprising all the features of claim 1; see especially:**

- first bracket part (11) is formed with a pin (16);
- second bracket part (10) is formed with a hole (20) for the pin (16);
- the hole (20) having two sections (20,26) of which one section (26) having a diameter larger than the diameter of the other section (20);
- the pin (16) being provided with a shoulder (34,36);
- the section (26) with the larger diameter is longer than the section with the smaller diameter.

**3. Dependent claims 2-5,7-9 do not contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step, as these features are known from the documents cited (see corresponding passages and figures) in the search report and D4 or are merely a matter of normal design procedure.**

**4. The combination of the features of claims 1-6 is neither known from, nor rendered obvious by, the available prior art and would have satisfied the criteria set forth in Article 33(2,3,4) PCT.**

In such a claim the meaning and purpose of the "plate-shaped part (13)" should have been clarified by identifying its relationship to the "locking part (13)", by identifying the meaning of its "free surface" and how it cooperates with the second bracket part for carrying out and guaranteeing the locking.

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/DK 03/00928

Such a claim would have resulted in a compact hinge provided with a secure and simple locking means.

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The invention relates to a hinge consisting of first and second bracket parts, wherein the first bracket part is formed with a pin, while the second bracket part is formed with a hole to receive the pin, where the hole is made in two sections, one section having a larger diameter than the other section.

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Such hinges are used in many connections, such as in the mounting of doors of the conventional type. In addition, such hinges are used for doors in child safety barriers, playpens and like. In connection with the last-mentioned use, the hinges are frequently made of plastics, and instead of the pin a screw is used for the joining of the two bracket parts of the hinge. Since doors for child safety barriers are to be protected against unintentional opening, they are constructed in some cases such that a vertical lifting movement of the door must be carried out before it can be opened, which requires that the hinge of the door is prepared for this.

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An example of such a door structure is known from WO 97/40253. This door structure has a hinge arranged such as to allow the door to be opened or closed after a vertical movement of the door has been carried out. The hinge is composed of several parts, including a bolt, in a rather complicated manner.

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A hinge of the kind defined in the introductory part of claim 1 is known from US-A-5,127,132. This hinge construction is not intended to be used such that the two bracket parts of the hinge can be moved vertically relative to each other.

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Accordingly, an object of the invention is to provide a hinge which is relatively inexpensive to manufacture, where the two bracket parts of the hinge can be moved vertically relative to each other.

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The object of the invention is achieved by a hinge of the type defined in the

introductory portion of claim 1, which is characterized in that a shoulder is provided on the pin, and that the section of the hole of the largest diameter is longer than the section of the smallest diameter. The hinge may hereby be made in two parts, with the shoulder serving as a lock which adjoins an edge defined by the area where the two sections of the hole meet.

Further, it is possible to move the brackets relative to each other, without the risk of separating the bracket parts from each other.

When, as stated in claim 2, the shoulder is provided on a portion of the surface of the pin, and it is dimensioned to pass the section of the smallest diameter by pressure, a hinge is provided which may be assembled by pushing the pin into the hole by a force which is so great that the two parts of the hinge cannot readily be separated after assembly.

When, as stated in claim 3, the shoulder is provided near the free end of the pin, it is possible, by suitable selection of dimensions of the two sections in the second bracket part, to make a hinge where movement of the pin is allowed or not allowed.

For use where locking of the rotation of the bracket parts relative to each other is desired, it is an advantage if, as stated in claim 4, the first bracket part is formed with a locking part which cooperates with a locking part on the second bracket part.

These locking parts may expediently be constructed as stated in claim 5 in that the locking part is formed by a box-shaped part which is terminated on a portion of its lower side by a plate-shaped part having larger horizontal dimensions than the box-shaped part, and that the plate-shaped part has a free surface which is flush with one free end of the box-shaped part, and, as stated in claim 6, in that the locking part on the second bracket part is

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formed by a box-shaped part which is terminated at its one end by a block-shaped part having larger horizontal dimensions than the box-shaped part, and that the block-shaped part has a free surface.

5 When, as stated in claim 7, the bracket parts are made of the same material, e.g. hard plastics as stated in claim 8, it is ensured that the manufacturing costs of the brackets may be kept reasonably low.

As mentioned, the invention also relates to use of the hinge.

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This use is defined in claim 9.

The invention will now be explained more fully with reference to the drawing, in which:

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fig. 1 shows a hinge according to the invention consisting of first and second bracket parts,

fig. 2 shows the second bracket part of fig. 1,

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fig. 3 shows the first bracket part of fig. 1,

fig. 4 shows a hinge in a second embodiment where the bracket parts are displaced relative to each other,

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fig. 5 shows the hinge of fig. 4, seen obliquely from the side with the bracket parts in a locked state, while

fig. 6 shows the hinge of fig. 5 in a non-locked state.

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In figures 1 to 3, the numeral 1 designates a first bracket part, while 2 des-

ignates a second bracket part which has a tooth engagement capable of cooperating with another tooth engagement (not shown), and the two tooth engagements may be positioned relative to each other by vertical displacement, e.g. as explained in connection with the safety barrier described in WO 00/11301. The first bracket part 1, cf. fig. 3, has a pin 4 adapted to engage a hole 7 on the second bracket part 2. The pin 4 moreover has a shoulder 5, as will be seen in fig. 3.

The hole 7 is formed with two sections (not shown), where one section has a larger diameter than the other section. The section of the largest diameter is disposed at the end designated 8 in fig. 2. The section of the smallest diameter has a diameter which allows the shoulder 5 on the pin 4 to pass only when it is subjected to a force, while the hole of the largest diameter allows the pin 4 with the shoulder 5 to move freely.

The function of the hinge will be explained now.

When the first 1 and the second 2 bracket parts are assembled, the pin 4 with the shoulder 5 on the first bracket part 1 is pressed into the hole 7 in the section of the smallest diameter. The two bracket parts are hereby locked together, but since the shoulder 5 is pressed into the section of the largest diameter, the two bracket parts may be moved relative to each other by rotation. If, moreover, the section of the smallest diameter has a length shorter than the pin 5, the two bracket parts of the hinge may be displaced mutually in the direction of the pin in addition to being rotated relative to each other, as the pin with the shoulder when displaced just slightly into the hole reaches the section of the largest diameter.

Such a displacement of the bracket parts relative to each other is shown in fig. 4, which shows a hinge which is basically constructed like the hinge of figs. 1 – 3, but now provided with a locking function, as will be explained

below.

In figures 4 – 6, the numeral 9 designates a first bracket part, while 10 designates a second bracket part.

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The first bracket part 9 is formed by a box-shaped part 18 which, on a portion of its lower side, is formed with a plate-shaped part 13 having horizontal dimensions which are larger than the box-shaped part. The free end 20 of the plate 13 is rectangular. The plate-shaped part 13 constitutes a first part of a locking mechanism which cooperates with a locking mechanism on the second bracket part 10.

As will be seen in figs. 5 and 6, also the second bracket part 10 is formed by a box-shaped part 19 which, on a portion of its lower side, is formed with a block-shaped part 16 which also has horizontal dimensions larger than the box-shaped part 19. The free end of the block-shaped part is formed as a square with a free surface 17. Finally, the second bracket part 10 is formed with two symmetrical collars 15 whose free ends are terminated a distance downwards by the free surface 17 so as to create a gap between the collars and the plate-shaped part 13 on the first bracket part 9.

It will now be explained how the hinge of figs. 4 – 6 works:

Fig. 5 shows the hinge in a locked state, where the locking function is provided by the plate member 13, with its free end 20 adjoining the free surface 17 of the block-shaped part 16.

Vertical displacement of the second bracket part 10 in the direction of the arrow 20 causes the block-shaped part 16 to be displaced relative to the plate-shaped part 13, which means that the bracket parts may rotate relative to each other, as indicated by the arrow 22.

In the rotation, the free surface 15 of one of the collars will slide on the upper surface of the box-shaped part 18, thereby providing stable fixing of the parts relative to each other.

- 5 The hinge described may advantageously be used in connection with the safety barrier described in WO 97/40253, in which the safety barrier has to be lifted before it may be rotated and thereby opened and closed, respectively.

## PATENT CLAIMS

1. A hinge consisting of first (1, 9) and second (2, 10) bracket parts, wherein the first bracket part is formed with a pin (4), while the second bracket part is formed with a hole (7) to receive the pin, where the hole (7) is made in two sections, one section having a larger diameter than the other section, characterized in that a shoulder (5) is provided on the pin (4), and that the section of the hole of the largest diameter is longer than the section of the smallest diameter.
2. A hinge according to claim 1, characterized in that the shoulder (5) is provided on a portion of the surface of the pin (4), and that it is dimensioned to pass the section of the smallest diameter by pressure.
3. A hinge according to claim 1, characterized in that the shoulder (5) is provided near the free end of the pin (4).
4. A hinge according to claims 1 – 3, characterized in that the first bracket part (9) is formed with a locking part (13, 18, 20) which cooperates with a locking part (16, 17, 19) on the second bracket part (10).
5. A hinge according to claim 4, characterized in that the locking part (13, 18, 20) is formed by a box-shaped part (18) which is terminated on a portion of its lower side by a plate-shaped part (13) having larger horizontal dimensions than the box-shaped part (18), and that the plate-shaped part has a free surface (20) which is flush with one free end of the box-shaped part.
6. A hinge according to claim 4 or 5, characterized in that the locking part on the second bracket part is formed by a box-shaped part (19), which is terminated at its one end by a block-shaped part (13) having

larger horizontal dimensions than the box-shaped part (19), and that the block-shaped part has a free surface (17).

5 7. A hinge according to claims 1 – 6, characterized in that the bracket parts are made of the same material.

8. A hinge according to claim 7, characterized in that the material is hard plastics.

10 9. Use of a hinge according to claims 1 – 8 for a child safety barrier.